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BULLETIN No 3286

WHAT THE DAIRY COW MUST BE

— BY —

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SAINTE-ANNE DE LA POCATIERE, P.Q.

TRANSLATED FROM THE FRENCH

BY

J. J. GAUTREAU, B. S. A.



A good Holstein cow.
Production of 118 lbs of milk per day

PUBLISHED BY ORDER OF
THE HONORABLE JOSEPH-EDOUARD CARON
MINISTER OF AGRICULTURE
PROVINCE OF QUEBEC

1917



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Demonstration on the dairy cow,
by the author at Joliette.



WHAT THE DAIRY COW MUST BE

Dairying is the foundation of our Agriculture. Approximately 800,000 cows, in Quebec produce 2,741,000,000 lbs of milk. Over 2000 factories manufacture 41,783,0'0 lbs of butter and 58,000,000 lbs of cheese, which products have a value of \$16,000,000. These figures suffice to prove that dairying is one of our principal ressources. Let us therefore increase this industry.

A good rational feeding is necessary. The cow is a wonderful milk manufacture, but the indispensable material (which is the raw matter) must be furnished. Well, very often an insufficient quantity of this raw material is furnished. This is just what explains the low production of so many herds.

To show the influence of feeding, M. Jos. Begin, director of the experimental farm of Ste-Anne de la Pocatière, bought 12 very low grade cows. Had these cows stayed in poor hands they would have given about 2500 lbs of milk. But with good rational feeding they produced 4000, 5000, 6000, 7000, 8000, and even 9395 lbs of milk. Many produced 450 lbs of butter. There is no doubt that if by better cultivation the cows received good pasture and soiling crops in summer, good hay and succulent feeds (ensilage and roots), in winter, a higher production of milk would be reached, and the national resources would be increased. To remain within the limits of this lecture, I will not discuss feeding. I will simply discuss how we can breed good dairy cows and how be use they can be improved.

CONSTRUCTION OF MILK-MAKING MECHANISM

To have good dairy cows, improved and better than those we already have, it is necessary to put into practice, the principles I have explained in Bulletin No. 30. We must make use of heredity.

1.—We must use for breeding only the good cows; those producing sufficient milk to pay for their food, stable rent, care received, and still more giving a profit to their owner. Remember that these good cows, giving a profit, without being altogether scarce, are not very numerous. The average annual production of our cows is less than 3000 lbs of milk. Therefore there are many poor cows, which must be weeded out and replaced by better ones. Unless it is an absolute necessity, these cows which lose money, will not be bred to refresh the herd. If possible only the best cows will be bred.

2.—We will use a bull, having in him, in a latent state, good milking aptitudes. For this he must not only be born of good parents, but also of a good line of ancestors. All his female ancestors shall have been very good producers of milk, all his male ancestors shall have been descendants of good cows as well.

If we use only our best cows and breed them to a good bull out of a good cow, the female progeny will in later years, become good dairy cows. Their quality will be according to that of the bull which sired them. Let me say that the choice of the herd bull is of great importance. First because he is half the herd. He alone having more influence than have all the cows; next it seems that he is more prepotent in the transmission of dairy qualities than are the cows.

I therefore advise you to make a better selection of your herd-bull. It is not sufficient to buy a pure-bred animal, it must be out of a remarkable dairy cow. Take all the possible precautions. In-



FILLIE

Photo from the *Journal of Agriculture*.
The best French-Canadian cow.
She produced 10,767 lbs of milk in 1 year
and 453 lbs of fat

dividual cow records will afford great information, (but is only a relative guarantee, tests being made by the proprietor). The best information will be found in the "Golden Register", which is under the supervision of a government inspector, and which contains the names of all cows giving over a minimum quantity of milk, established by the Association of each breed.

To be registered in this book :

The Canadian cow must produce :

	lbs of milk	lbs of fat.
from 2 to 3 years of age	4,400	198
" 3 " 4 " "	5,200	234
" 4 " 5 " "	6,000	270
" 5 " 6 and over	6,800	306

For the Ayrshire breed, the cow must produce the same quantity of butter-fat and a little more milk.

The Holstein cows which are larger and better feeders must produce :

	lbs of milk	lbs of fat.
from 2 to 3 years of age,	7,500	225
" 3 " 4 " "	8,500	289
" 4 " 5 " "	9,500	323
" 5 and over	10,500	357

This book of performance is simply a catalogue of the best cows of Canada and can greatly facilitate the buying of breeding-stock.

Bulls out of these remarkable cows will be paid dear, no doubt. But the money spent in this way is a good investment, bringing a large interest. As a proof, take for instance, a herd with an average yearly production of 3000 lbs milk; you buy a bull-calf 4 or 5 months

old, out of a 10,000 lbs cow, for \$100.00. This is evidently dearer than would be a grade. But we shall see further.

The descendants of the 3000 lbs cows, sired by a bull having in a latent state, the capacity of producing 10,000 lbs of milk, shall make cows of an average yearly production of 6,000 or 7,000 lbs of milk, providing they are well looked after.

The increase may not be exactly 3000 lbs per year, but will be very close to it. 3000 lbs of milk per year, at 1.00 per hundred lbs. represents \$30.00.

Each cow has therefore given an increase of profit equal to \$30.00, without any increase of labor or rent, but simply a slight increase of feed.

If this gives 20 females yearly, then the increase of profit will be \$600.00. If he is used during 3 years, profit will be \$1800.00. It is easily seen that the step is a good one.

Your objections might be that milk testing is not everywhere established and that the "Golden Register" contains very few names of cows. Very often we are obliged to judge the cows we intend to breed as well as those from which we intend to buy a bull, by general appearance.

Is it possible, by the exterior characters of a cow, to judge her capacity as a milk and butter producer?

Without doubt, a person who observes, an experienced and skillful man, can quite exactly appreciate a good cow. But this judging can never equal the scale.

To facilitate this examination I will group all the exterior characteristics of a dairy cow.

DAIRY CHARACTERISTICS

They can be all grouped in three classes, according as they indicate good conformation, fineness and quality of udder.

I

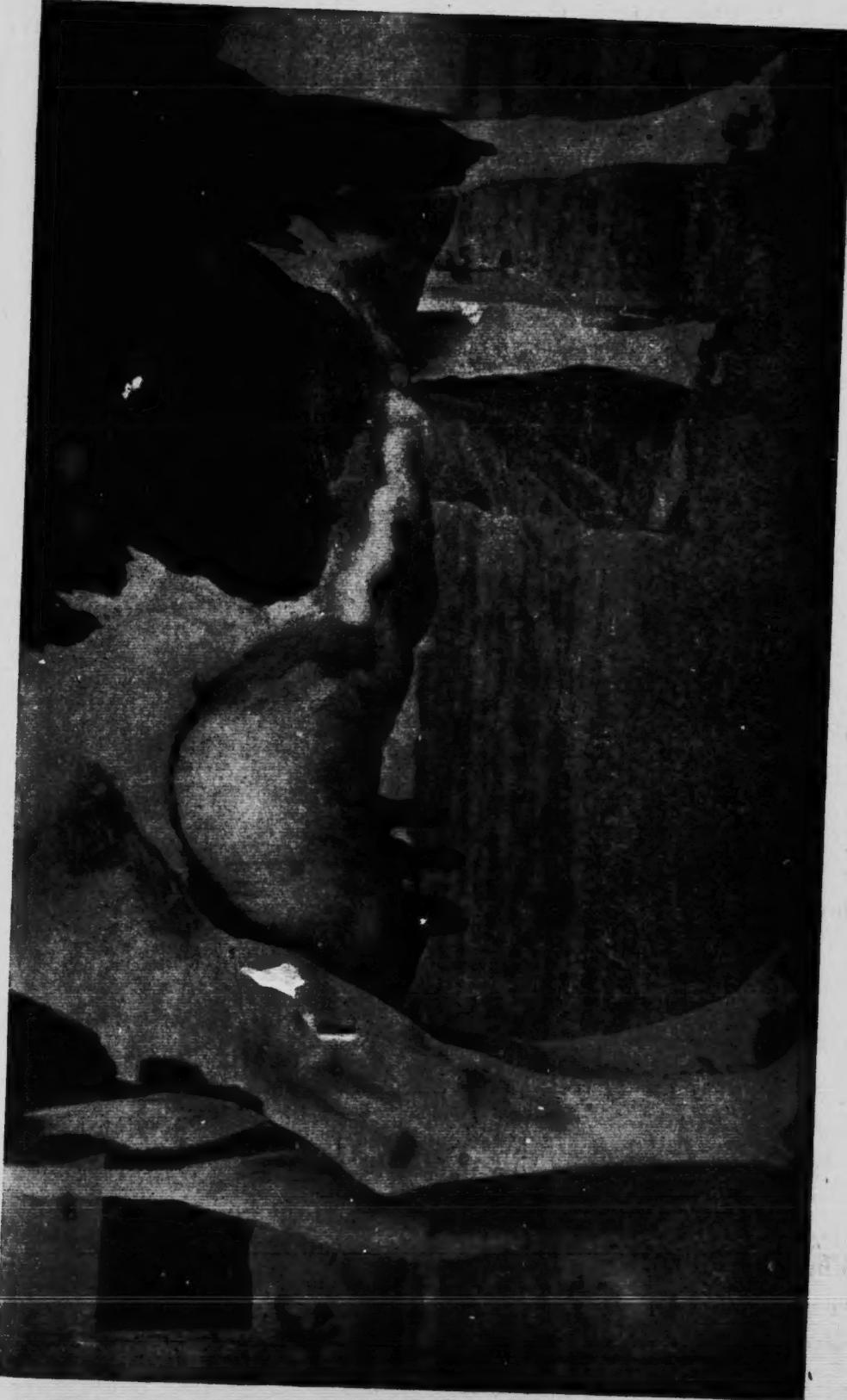
GOOD CONFORMATION

Conformation is very important. To produce a large quantity of milk without doing harm to herself, a dairy cow must have a good chest, permitting the heart and lungs to work freely. She must also have a capacious abdomen indicating a powerful, well developed digestif apparatus, because a high producer of milk must be a good eater.

The body or barrel of the cow should be long, wide and deep. Allow me to insist on the lenght and breadth for there is harmony of constitution and lenght among the different parts of the body; a long udder, extending well up behind, and well under the body, mostly always corresponds to a long barrel; to a wide barrel corresponds a wide udder, extending well from side to side.

Lenght can be appreciated by:

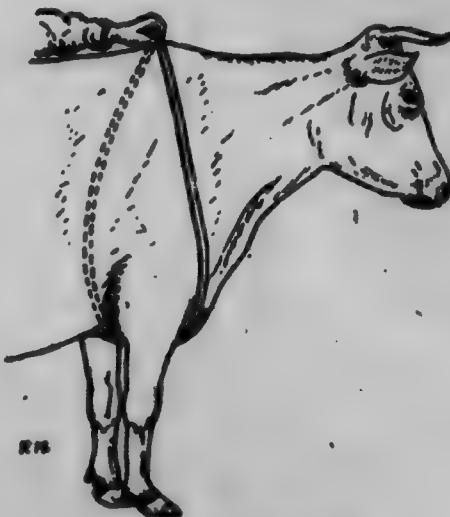
- a) The lenght of the tail, which will extend below the hock.
- b) The depressions found between the joints of the back bone, along the withers and loin.
- c) The spacing of the ribs, especially of the last two, a good milch cow affording a space sufficient to receive 3 or 4 fingers.
- d) The width of rib.



From Alberta Dept. of Agriculture.

Good milk-veins.

e) A very simple mensuration. A string or tape stretched from the poll to the tail-head of the cow must be the same length or longer than another string passing over the withers and between the fore-legs (girth in bias). I have tried this on many cows of different breeds, the production of which I knew. According that the cow was a larger producer the length was greater than the girth in bias.



Girth taken slashwise

Width must be especially present at the hook-bones (hips) ; it should be also present at the pin-bones.

II

FINENESS OR QUALITY

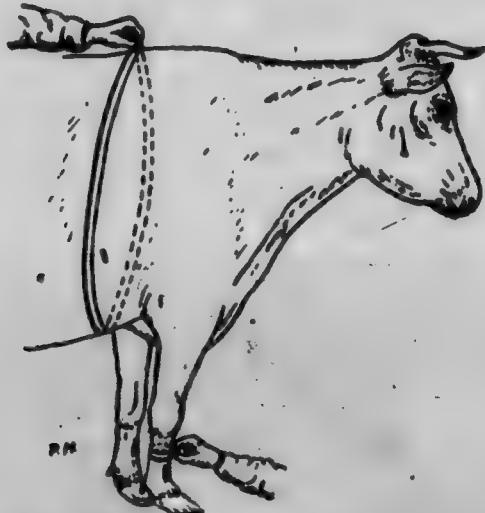
Fineness of bone can be judged by the bone, skin and hair.

a) Fineness of bone is shown by that of the limbs, tail and horns. Fineness of limbs being perhaps the most important and can be most easily judged by mensuration.

The circumference of pastern must be contained 10 times in the

heart girth. If the bone is coarse the heart girth is only 8 times the circumference of the cannon.

b) The fineness of skin is appreciated sightedly; small wrinkles



Heart girth and circumference of cannon.

back of the udder, on the neck around the eyes; but still better by touch: a fine mellow skin will readily detach from the body when taken with the hand.

III

THE UDDER

The udder, being the organ producer of milk, will give the best information. It must be :

a) Capacious and of good conformation, slanting slightly and extending well under the body, and well attached behind without depression.

The four quarters must be regular and of equal size, which will be indicated by the regularity of the teats. These must be well placed. From a side view, two teats only must be seen. At a rear view, the two hind teats must be seen between the two fore-ones.

b) Mellow, because the size of the under is important only if accompanied by mellowness.

A hard fleshy udder can be nothing else than a bad one.

The mellowness, suppleness of a capacious udder indicates a high production of milk.

c) Well irrigated. The more blood poured into the udder the more active it will be; this is easily understood because milk is indirectly made from the blood. The arteries pouring the blood into the



A well formed udder with well placed teats.

Photo from prof. H. Wing, Cornell University

udder, cannot be seen, because they are hidden too deeply, but the veins which lead the blood back to the heart, can easily be seen and felt.

Very large, crooked, milk-veins emptying in a large deep milk-well are among the best and most certain characteristics of a good milker.

To these rational characteristics, can be added other signs which are not without value: I will cite only the extension of the escutcheon.

CHARACTERISTICS OF FAT PRODUCING

In the province of Quebec, where the manufacture of butter is becoming more considerable, we must look not only for producers of a large quantity of milk, but also for a large quantity of butter-fat. The following characteristics will indicate a producer of butter-fat.

- 1.—Abundant secretion of the sebaceous glands, noticed by the oily feeling of the skin, when touched by the hand and the abundance of cerumen found in the ears.
- 2.—Production of oily, yellow pellicles, all over the body, but particularly at the poll of the head and switch of the tail.
- 3.—Yellow shade of the skin (mucous membrane) around openings: eyes, mouth, nostrils, anus, vulva.
- 4.—Flatness of the papillae which line the interior of the mouth. Though somewhat empirical, this last sign is often true; the others are always so.

That you will make use of the individual cow record, which is best, or that you use your own knowledge of animals, just as aforesaid, use only your best cows for breeding purpose. You can expect calves of high quality if these cows are served by a good bull from a good strain of milkers.

Shall these calves become good producers of milk? This depends upon the breeder. Yes, if they are well fed but without exaggeration, and especially if you train them according to the principle of "use and disuse".

TRAINING OF THE UDDER

"USE AND DISUSE"

The udder is extremely sensitive and particularly to the milking manipulations.

The action of stimulating milk secretion, will cause the udder to be of a larger secreting capacity. This organ is like the others; the more it works, the more it can work, the more milk it secretes, the more it is capable of secreting.

The udder can be trained in three ways :

1.—^{By} stripping completely. There will be an increase of milk which will be of better quality. Quality will be affected because the first milk drawn from the udder is very poor and the last is very rich. Following analysis were made by MM. Raquet and Lapautre of the Agricultural Institute of Gembloux. The milk contained:

- 1.7 per cent fat for the 1st portion drawn
- 1.9 per cent fat for the 2nd portion drawn
- 2.1 per cent fat for the 3rd portion drawn
- 2.5 per cent fat for the 4th portion drawn
- 3.3 per cent fat for the 5th portion drawn
- 4.8 per cent fat for the 6th portion drawn
- 5.6 per cent fat for the 7th portion drawn
- 7.5 per cent fat for the 8th portion drawn

In stripping well, the richest milk is drawn.

Quantity is also affected. The best method to make a cow go dry is to only half milk, and the best method to keep a cow in milk is to practice good, thorough stripping.

2.—By frequent milkings. These increase milk production. A Danish veterinary surgeon obtained almost marvellous results by frequent milkings. One cow produced :

12 lbs with 3 milkings,
25 lbs with 7 milkings

This does not mean that it would be advantageous to milk your cows 7 times per day. Man labor is too scarce. But a very good thing to do is practise 3 milkings per day during the week following parturition, and this especially for young cows. The additional noon-milking should be practised at least during one month.

The increase per day would be 4 per cent to 8 per cent and more for the young cows. It must be remembered that if the effects of training is not to be neglected for the old cows, it is particularly efficacious for the young ones which are not yet in trim and whose tissues are malleable. This influence becomes more interesting according that training is continued during a long period of time.

Frequent milkings are, without contradiction, the best manner to put a young cow in trim, and to make of her a good producer. Wolf, in Germany, found that the milk from 3 milkings was richer than that from 2.

2 milkings	3.5	4.4
3 milkings	4.1	4.5

3.—By diagonal way of milking. Diagonal milking produced better results than the lateral or straight milking. The excitement attending to a teat on each side of the udder being more considerable, the quantity of milk was increased.

The fact was put into evidence by the following experiment :

	Diagonal milking			Lateral milking	
Cow No. 1	31lbs	3.75 p.c.	30lbs	3.15 p.c.	
Cow No. 2	31.5 lbs	2.57 p.c.	30.4lbs	2.40 p.c.	

As a review, I will say that to have good cows in your future herd, good bulls from good strains of milking cows, must head your herd. In this manner your calves will become good producers if you train them by frequent, complete, diagonal milkings.

